

# PENNS<sup>T</sup>ATE Borland Laboratory Renovation

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## Executive Summary

The Pennsylvania State University, Borland Laboratory Renovation has recently begun construction under the General Contractor of Leonard S. Fiore, Inc... Fiore received the notice to proceed on Monday December 4<sup>th</sup>, 2006. This thesis proposal takes an in depth look at the critical building issues that will be researched in the following Spring 2007 semester. The topics being discussed are as follows:

- The AIA 2030 Challenge on Building Renovations
- A redesigned domestic water piping system
- A new location for the crane placement
- A redesigned green mechanical system

The AIA 2030 Challenge on Building Renovations will take an in depth look into the problems that architecture and building community are posing onto the earth. A research has been done by the U.S. Energy Information Administration. Their findings prove that the architecture and building community is unknowingly responsible for almost half of the greenhouse gas emissions in the U.S.

The Current plan for domestic water piping on this project is to use a mixture of steel and copper tubing. The price of copper materials has sky rocketed in the last year and has significantly raised the prices for plumbing sub contractors. This section will discuss a redesigned domestic water piping system using a cross-linked polyethylene tubing in place of copper.

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The current location for the crane on this project is on the north side of the building. This location for the crane could cause problems interfering with the Agriculture building behind it, and with the many pedestrians that walk in this area. A new location has been proposed and further research will be covered discussing budget and schedule savings.

In concurrence with the AIA 2030 Challenge, a more efficient mechanical system will be designed to fit this project. Using a green mechanical system will allow this project to become a silver rated LEED project and also help the environment. The mechanical system will be redesigned and then an analysis will be completed to find any budget or schedule savings.